

exercising pressure on the enemy, in conjunction with sea-power, blockade and the defeat of the enemy armies. Aircraft would have a necessary role in future land and sea battles, although their primary task should be the direct assault by air on the enemy nation.

Trenchard's forecast turned out to be closer to the actual events of the air warfare in World War II than those of Mitchell and Douhet, although the latter pair may turn out to be the truer prophets in the long run. Doubtless this was due to Trenchard's greater experience and his long-time responsibility for the development of the RAF—the first independent air force.

The bombing of cities during World War I, limited as it was, and the dire prophecies of others besides Douhet and Mitchell predicting that direct assaults on the civil population would be enormously increased in future wars, made many people believe that air bombing should be outlawed, or at least limited. Various attempts were made to do this. A group of international jurists met at The Hague in 1922-23 and drew up a set of rules which would have set limits to the right of air bombardment in war, generally assimilating these to the previously recognized rights of bombardment by artillery from the sea and the land. The rules allowed the bombing of armament industries, but stipulated that this should be done in such a way as to inflict minimum damage on non-combatants. In this, the distinguished jurists showed that they did not understand an essential characteristic of the aeroplane as a means of delivering an explosive charge, namely its lack of accuracy while fighting under the stresses of actual warfare. But one can scarcely blame them for this, as they doubtless had expert advice to the effect that bombs could be dropped in a relatively discriminating manner. Although a good deal of interest and discussion was aroused by the jurists' proposals, they were never incorporated in an international convention, and never became in any sense international law.

In 1925 the League of Nations set up a commission to prepare for a conference on the reduction and limitation of armaments. It held sessions from May 1926 until December 1930. The United

States participated in the proceedings from 1926, and the Soviet Union attended from 1927, although they were not members of the League. Litvinov, the Soviet representative, proposed complete and immediate disarmament in December of 1927, an antecedent to Mr. Khrushchev's proposal to the United Nations in 1959 for general and complete disarmament.

While the preparatory commission was struggling with technicalities, a bolder, simpler and more idealistic proposal was put forward by Mr. Kellogg, then United States Secretary of State. The idea was brought to final form with the collaboration of M. Aristide Briand, Prime Minister of France, and became known as the Kellogg-Briand Pact. It was a treaty under which the signatories renounced war as an instrument of national policy, or, in other words, as a means of settling international disputes. Signed in August 1928 by fifteen of the most important nations, by 1930 it had been subscribed to by all self-governing states, except three South American republics. In 1931 it was invoked in vain to stop the Japanese invasion of Manchuria; in 1935 an appeal to Italy not to invade Ethiopia similarly failed. And then came Hitler and World War II. The lamentable failure of this noble experiment does not seem to have lessened the enthusiasm of the Soviet Union, and a few other states, for giving paper promises to be forever virtuous and peaceful.

Finally the League's disarmament preparatory commission adopted a draft convention, and this was submitted to the main conference which assembled in 1932 at Geneva. The draft convention, *inter alia*, provided for military aircraft to be limited in their horsepower, and for the prohibition of chemical and bacteriological warfare. Another proposal discussed was to prohibit air bombardment of any nature. The British Government, having in mind the use of the RAF to control the unruly tribes on the North-West Frontier of India and in Iraq, suggested an amendment allowing this form of air action. The air control, of course, had been exercised in a relatively decent way: warning was given to evacuate villages which were to be bombed as a punishment for tribal forays, abductions and so forth. This, in fact, was an economical and relatively bloodless way of controlling these law-

less groups, who had immemorially been given to the practice of raiding and pillaging their neighbours. The former method was to send punitive columns of troops, who generally had to fight pretty hard to reach their objectives—the tribal villages—in the face of great difficulties of terrain and transport.

The British Labour Party, then in opposition, accused the Conservative Government of having blocked agreement to prohibit air bombardment, which it seemed would have been greatly in the interest of Britain, for the comparatively minor advantage of using the RAF to control marginal frontier areas. The Conservatives, of course, denied that this was a substantial cause of the disarmament conference's breakdown.

There were other proposals for legitimatizing air bombing of military targets in support of air or sea operations. But it became clear that it would be very hard to define what was a legitimate military objective. In 1933 a new draft based on British suggestions was unanimously accepted by the disarmament conference as a basis for the future convention. It called for a limitation of the numbers of naval and military aircraft, and for their eventual abolition.

The conference droned along, but the world political situation was worsening. In September 1931, the Japanese had begun a military offensive in Manchuria, which led to the invasion of China. As the League of Nations disapproved of these actions, Japan withdrew from it in 1933.

Germany had been demanding that the other powers should disarm down to her level as stipulated in the Treaty of Versailles, or that she should be allowed to rearm. In October 1933, she withdrew from the disarmament conference, and from the League. Italy threatened to do the same. In the face of the undisguised warlike intentions of the partners of the eventual Fascist alliance, disarmament was manifestly impossible, and on 16 June 1934 the conference was suspended. However, subcommittees to study various aspects of the disarmament problem were set up, and the bureau of the conference continued to exist until May of 1937. Italy had invaded Ethiopia in 1935 and carried on its colonial war there in spite of half-hearted economic sanctions voted by

the League. Japan invaded China in July 1937. In the course of their war against China, they bombed Canton in 1938 and Chungking in 1939, causing numerous civilian casualties in each case. The Kuomintang Government protested violently. Madame Chiang Kai-shek's account of the bombing of Chungking rivalled the realities of the Hamburg holocaust. It was claimed that 1500 were killed, and about the same number seriously injured. The world was mildly upset. In July 1936 the civil war in Spain broke out, during which Hitler's Luftwaffe and their Italian colleagues shocked the world by bombing civilians in towns, notably Guernica.

It is instructive to note that all of these countries that initiated the bombing of civilian targets in the 1930's suffered incomparably greater damage when this sort of warfare was waged against them in the 1940's. Could the same kind of thing happen to the initiators of atomic bombing of cities?

The failure of the League of Nations Disarmament Conference, which broke up without achieving any result whatever in June 1934, is frequently recalled with satisfaction by those who are against all disarmament in the 1960's. Presumably they must also be happy about what followed.

lived, the food- and material-producing areas and the transportation systems which carried food and materials to where they were needed. Mitchell then went on to describe the historic form of war: an army on the offensive with the vital centres as objectives, and the army of the other side defending them. In his view, an aberration in strategical thinking developed. This put the intermediate object—rendering the enemy powerless by destroying his army—ahead of the true object, which was to put pressure on the enemy nation by controlling his vital centres. Air power, however, could attack the vital centres directly and entirely neutralize or destroy them. Therefore the hostile army was a false objective and it would be unnecessary to destroy it; a numerically greatly superior army would be at the mercy of an inferior air force, and could be disregarded.

The same error noted in the Douhet theories is apparent here. Mitchell disregards the possibility of improvements in air defence, and also the possibility that the enemy might have an air force (or other means of delivering high explosives) as powerful as that of his own nation. Of course, he was thinking of aircraft as the only means of delivering high-explosive bombs. The ballistic missile, with its invulnerability to defensive measures, was yet to come, and World War II would also show that the high-explosive bomb delivered by aircraft had its limits. The limitation was to be created by increased defensive power based on improved fighting aircraft, and especially on the invention and perfection of radar, which would allow the fighters to be effectively concentrated against the bombers. Moreover, anti-aircraft artillery was to be hooked up with radar through predictor apparatus, resulting in enormously improved effectiveness of anti-aircraft gunfire, further reducing the power of the air bombing offensive.

The Germans, who had not built up an independent air force for bombing enemy cities in World War II, were to react to the terror-bombing of their country by building the V-weapons. With these they were to open a bombardment of London in the summer of 1944. From these weapons, or more particularly from the V 2, a rocket with a range of about 200 miles and a high ex-

plosive warhead, would be developed the rocket armament which is now the principal vehicle of the nuclear weapon.

Foreshadowing these rockets, World War I saw the first instrument of long-range bombardment. This was the German super-guns, nicknamed "Big Bertha" (after the Christian name of the Krupp heiress). This secret weapon, which fired a shell of about 8-inch calibre with a range of 35 miles, opened fire on Paris coincident with one of the German offensives of the spring-summer of 1918, and was intended to terrify the Parisians and depress morale generally. After the initial surprise and some consternation, for it took some little time for the French to discover how and from where the shells were arriving, the effect was not great. I recall being in Paris on leave when the big gun was still dropping shells into the city at a slow and rather spasmodic rate of fire (for the linings of the gun, under the tremendous pressure of the propellant, did not last for many rounds). The life of the city seemed not at all disturbed. But from this forerunner it could have been deduced that air bombardment would develop as it has, the rocket replacing the piloted bomber aircraft for the delivery of the explosive to a target area of considerable dimensions.

General Mitchell expressed another important idea in 1930. He wrote that a country which made its air power sufficiently great might easily establish world domination. Great industrial countries could be decisively defeated by bombing attacks; furthermore, they could be held in subjection by an air force more easily than by an army and navy. If the defeated country should try to break out of its bondage, aircraft of the conquering nation could destroy the crops and render the fields infertile, and could destroy more of the industry and dwellings as well.

Reading this, it is hard to avoid an impression of megalomania. The idea of world dominion through air power was to reappear after World War II in the first intoxication of total victory and with the possession of the A-bomb, although the realities of world power and politics gradually extinguished such flaming dreams. The vision of air forces policing a world empire may have been agreeable to some airmen. Maybe they pictured an unopposed air

force, like Jove, visiting destruction on disobedient groundlings. However, air force policing was applied, in a considerably reduced and milder form, by the RAF in the inter-war years, to the control of British colonial possessions, or mandates, such as Somaliland, Iraq, Jordan and the North-West Frontier of India. The experience of such operations may have moulded the thought of a generation of RAF officers, the successes of unopposed aircraft giving a false impression of the power of the air. Among those taking part in these operations were Squadron Leader Harris, the future Air Marshal and chief of the RAF Bomber Command in World War II, and Flight-Lieutenant Saundby, who was to be his principal staff officer and deputy and an Air Marshal also.

Mitchell thought that the influence of air power had become so great that all conceptions of military strategy, including the handling of armies and navies, would be changed. He also proclaimed that the growing power of the air was for the betterment of civilization, because wars would be decided quickly and not last for years and years. Finally, he warned that if a European country attacked the United States, the first targets would be New York, Chicago, Detroit, Pittsburgh and Washington. However, with the experience of World War II behind us and the threat of nuclear war looming over us, it is doubtful whether we would agree with Mitchell that the development of air power and its employment in war has been "for the betterment of civilization."

A more moderate view of the future of air warfare was held by Lord Trenchard. This was set out in 1928 in a carefully composed letter to Admiral Richmond, the first Commandant of the newly formed Imperial Defence College. Both before and after this, Lord Trenchard expressed more extreme views; but these presentations were probably influenced by Trenchard's need to make as strong a case as possible for the continued separate existence of the RAF. The younger service was more often than not, in the inter-war years, under attack by the two older services in the battle for the greatest share of the Treasury spending budget. There were frequent attempts to re-establish separate air services subordinate to the Navy and Army, to the detriment of the

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ata! (like us, etc.)

unified air force idea. In fact the Royal Navy did succeed, in the end, in gaining much of what it wanted in the way of a Naval Air Service under its direct control.

In his letter to Admiral Richmond, Lord Trenchard was doubtless trying to be as reasonable and objective as possible, while at the same time propounding a theory of overall strategy which would emphasize the importance of an independent air force. He stated that the object of all three services in war was to defeat the enemy nation, not merely its army, navy or air force. The air force, however, would not need to defeat the opposing armed forces before it could defeat the enemy nation. This did not mean, in his view, that intense air fighting would not take place; on the contrary, it would be inevitable. But the air fighting would not take the form of directly attacking the enemy aircraft, either in the air or at their bases. The stronger side would develop a powerful offensive against the enemy industries on which he depended for the sustenance of his war effort; this would force the enemy to allocate aircraft to the defence of these areas, and he would thus be thrown on the defensive.

Lord Trenchard answered the question of whether such an air offensive would be contrary to international law or the dictates of humanity by saying that no international convention on how air bombardment should be conducted, restricted or defined did, in fact, exist; this was true. But provided that all reasonable care was taken to confine the scope of the bombing to the military objectives—the factories manufacturing all sorts of war material "from battleships to boots"—then the incidental damage and casualties which would be suffered by the civilian population from bombs that missed their intended mark would be regrettable, but not a sufficient reason for abandoning the policy of direct air attack on the enemy's productive capacity. If the enemy could secure immunity from air bombardment for his war manufactures because of the possibility of damage and death to the civil population, then he would always site his arsenals in the biggest cities.

Trenchard stated that he did not claim that an air force by itself could finish a war. But it would be one of the means of

CHAPTER 4

Bombing in World War II: 1939-1942

WHEN World War II broke out the airmen could put their theorizings into practice, though it was more than a year before a bombing offensive which could be described as independent of land or sea operations was attempted. Perhaps the beginning of air warfare in World War II should be dated, not from Hitler's invasion of Poland in September 1939, but rather from his occupation of Czechoslovakia in March of that year. He accomplished this without actual fighting, solely by the threat of overwhelming attack. The surrender at Munich in the previous September had shown Czechoslovakia that she had no friends or allies who would fight in her support. Aged and ill, President Hacha was finally forced by Goering's menaces to sign the capitulation. Goering threatened that his bombers would destroy Prague, and what befell Rotterdam some fourteen months later proved that he could have made his threats good.

The ideas of the air warfare theorists had been popularized, if that is the word, by journalists during the 1920's and 1930's, and in England, at any rate, the majority of people thought that if war came, great air attacks on London and other large cities would be inevitable. Indeed, one of the main reasons why Mr. Chamberlain had agreed to Hitler's terms at Munich was apprehension (based largely on airmen's evidence) as to the great damage which

air bombing attacks could cause, Britain's defences at that time being very inadequate. Aircraft had been greatly developed in speed, reliability and load-carrying power since World War I and it was known that Hitler's Germany had a much more powerful air force than had Britain. It was uncertain how many bombing aircraft the Luftwaffe numbered, and there was an exaggerated fear of what it could accomplish. Londoners could remember the air raids of World War I, and could foresee the multiplication of their effect by a factor of 10 . . . 100 . . . 1000. Who knew? Air Force officers had estimated that air attacks on London might cause 150,000 casualties in the first few days.

Minutes after Neville Chamberlain's voice, gloomy and apprehensive, had announced that Great Britain was at war with the Third Reich, the air raid sirens sounded. It was a false alarm, and for ten months all the alarm about air attacks on England's great cities seemed false also. But the compulsory carrying of gas-masks, issued hurriedly to the population of the most threatened centres, was a constant reminder of the danger. These little cardboard boxes, measuring about six inches in each dimension, were remembrancers that death might come out of the sky with little warning. Looking back, it is somewhat ironic that the danger against which the British were most visibly prepared never materialized.

Why didn't the air raids come? It was because Hitler and his advisers had a theory on the use of aircraft in war different from that of Douhet and his disciples. This had been demonstrated in the swift overthrow of Poland, where the Stuka dive-bombers combined with powerful tank formations to disrupt and shatter the Polish Army and Air Force. The long-range bombers were used mainly to destroy the Polish aircraft on their aerodromes, and then for deep attacks on communications. The air effort was co-ordinated with the operations on the ground; the objective of all the German forces was to destroy the capacity of the enemy's forces to resist, and to conquer territory. In this they were completely successful. Polish bravery could do nothing against the powerful armament and new blitz techniques of the Germans.

On the first of September, 1939, President Roosevelt had addressed an appeal to the belligerents to refrain from unrestricted

air warfare. This had been agreed to by the British Government the same day. The German Government issued a declaration on the 18th of September welcoming Roosevelt's appeal. But the British were in no position to begin effective bombing warfare, even if there had been no Roosevelt appeal for them to accept. While over fifty RAF bombing squadrons had been organized, there was no reserve of aircraft, no training organization and no reserve of trained pilots. Even when provision had been made for these essentials, the front line operating bomber strength would be only three to four hundred aircraft, about half of them light bombers unsuitable for long-distance attacks on industrial targets in Germany.

In the hurried development before the war to overtake the lead of the German Air Force after Britain had awakened to the danger, priority had been given to the needs of defence: fighter aircraft, fighter control and the radar for detecting the enemy's approach. In the event, the fighter organization brilliantly justified the money and effort spent on it by repulsing the German invasion threat. But the bomber force, which would have to carry out the strategic offensive, lacked the kind of aircraft and the technical aids needed to produce effective results in an offensive against the German homeland, although the Air Staff had foreseen the need for such equipment in the pre-war years and had urged its procurement. Specifications for the four-engined bombers which were eventually the mainstay of Bomber Command were issued in 1936, but the planes only began to be produced in adequate numbers late in 1942.

During the late autumn and in December of 1939, the RAF attempted a number of raids on naval vessels in German waters or harbours, using the Wellington, the latest and best of their bombers. No serious harm was done to the German ships. In the first raid, the Wellingtons were able to fight off the defending Messerschmitt fighters without loss. But after that they suffered increasingly severe casualties. In two separate attacks, the British bombers lost nearly half their number. These operations caused the British air staff to reassess the possibility of large-scale daylight air bombing of Germany which their pre-war strategical thinking

had favoured. It had been the majority opinion that if the bombers were armed with machine-guns in multiple power-operated turrets, and flew in formation, they would be able to bomb Germany in daylight with relatively few losses even against fighter opposition. But the experience of December 1939 decided the air operations staffs that this would not, in fact, be possible, and so it was decided to concentrate on night bombing. The RAF had always considered night bombing as an alternative way of operating. However, the difficulties of navigating in the dark to the target areas and then locating the targets accurately enough to permit precise bombing had not been fully realized.

The US Air Force, even before the USA was at war, knew of the early RAF experience with bombing by daylight which caused them to turn to night bombing as the more effective system of attacking the German homeland. However, the Americans were confident that in the B 17 "Flying Fortress" they had a long-range bomber with sufficient performance and carrying sufficient defensive armament to enable them to penetrate to targets in enemy country, even in the face of strongly organized fighter defence. The famous Norden gyro-stabilized bomb-sight, which under peacetime training conditions had enabled very accurate bombing to be carried out from high altitudes, also led the American airmen to overrate the effectiveness of day-bombing operations.

I recall discussions at this time, in the Imperial Defence College and other military circles, showing a cleavage of opinion in the RAF on what the overall policy of that service should be. This argument went on between the "bomber boys" and the "fighter boys" and, like most inter-service controversy, boiled down to how the available money was to be allotted. Generally speaking, the bombers saw the RAF developing in accordance with theories of independent air operations such as those described in the last chapter. The "fighter boys" were those who now were responsible for building up the air defence of Great Britain to cope with the threat of heavy air attack by Germany. They had to create the organization within which the future heroes of the Battle of Britain—the famous "few"—could effectively defend the country.

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area bombing when clouds made the ground invisible had also begun to be available. During the spring of 1942, under Harris' strong leadership, several relatively successful raids were carried out, on Cologne, Lubeck and Rostock. But the policy of concentrating the offensive effort on the bombing of Germany was being contested with violence by the Army and Navy, with leading politicians entering into the dispute. Therefore Harris and his advisers concluded that something spectacular must be done to convince the Government and the people that great results could be achieved, and perhaps the war could be won outright, if only the strategic concept of bombing the German people into submission were fully accepted, and if the necessary resources were devoted to it.

This led to the preparation and execution of the first great raid by one thousand bombing aircraft on Cologne. It is interesting to note that the operation was given the code-name "Millennium." The Oxford gives a secondary definition of this word as a "period of good government, great happiness, & prosperity." Whether the period which followed this first demonstration of saturation bombing and its fire-raising capacity should be so qualified is left to the reader to decide.

The raid was carried out, and from the Bomber Command's standpoint it was a great success. Out of 1046 aircraft taking part in the operation, only 44 were lost—a rate far less than normal. Air Marshal Saundby, in his book *Air Bombardment* states that the "reports of the crews were wildly enthusiastic." "The news, when released, resounded throughout the world." "The imagination of the British and American publics was captured." (The United States was at this time developing the bases in England from which its bombing forces would carry out their campaign against Germany.) Part of the reason for Bomber Command's Cologne raid was to convince the American authorities and the American public that air attack on the German homeland should be a prime strategic object of the Allies, and to avoid the possibility that the American bomber force intended to take part in it should be diverted elsewhere.

Prime Minister Churchill sent Bomber Command a congra-

tulatory message, concluding: "This proof of the growing power of the British Bomber Force is also the herald of what Germany will receive, city by city, from now on." The Prime Minister and the War Cabinet were persuaded now of the possibility of defeating Germany by bombing attack, and confirmed their tentative policy. Moreover, it was now directed that priority should be given to Bomber Command requirements, not only in aircraft but in the development of radio devices to facilitate accurate position-finding at night, even in unfavourable weather, in order to make bombing relatively more accurate and effective.

The Casablanca Conference in January 1943 set the seal on the bombing policy which should be followed by the RAF and USAF in the European theatre, in the following words:

Your primary object will be the progressive destruction of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their armed resistance is fatally weakened.

"Undermining morale" sounds a nice, gentle, persuasive way of waging war, until one realizes that it means killing civilian men, women and children indiscriminately, destroying their dwellings and burning and suffocating them by tens of thousands.

antecedents and its horrifying actuality by David Irving in his remarkable book *The Destruction of Dresden*. Some 750 Lancaster heavy bombers of Bomber Command attacked the city on the night of 13/14 February 1945, using the techniques which had been found to be most effective for ensuring the destruction of the largest possible area of a city. A firestorm was produced, causing far more casualties than that of Hamburg, or indeed than any other air operation of World War II, Hiroshima included. The estimated toll of dead was 135,000. The city was packed with refugees and prisoners of war, swarming in to escape from the advancing Russian armies. It was well known to the Intelligence Section of Bomber Command that Dresden harboured very little of military importance. This caused Bomber Command to query the order to attack the city—a very rare step. The order was confirmed. The intention behind the order and the reasons for it are not entirely clear, in spite of Mr. Irving's painstaking research. However, he clearly indicates that the political authorities must bear the responsibility for what resulted. It seems that it was an attempt to show the Russians the might of the Anglo-American bomber forces. By the end of 1944 the Allied advance had been halted, and this was followed by the German counter-offensive in the Ardennes. Meanwhile, the Russians had been surging forward on the Eastern Front. The leaders of the Western Allies must have thought they had to do something to restore the balance of military success between the West and the USSR, in view of the forthcoming negotiations at Yalta.

The British bombing attack was followed the next day by a blow by the Flying Fortresses of the 8th Air Force; over 300 of them bombed the burning city again, and Mustangs of the fighter escort flew over it, strafing "targets of opportunity," that is, anything moving that caught their eye. When the crews were briefed for this operation they were told that they were attacking railway installations. The American Air Force commanders still seemed to pretend that such targets in the middle of large towns could be attacked and seriously damaged without causing enormous casualties to the civil population. The Dresden operation took place some weeks after an attack on "railway and administrative

targets" in Berlin had killed 25,000 of the city's civilian inhabitants in a single afternoon. Either the US Air Force commanding generals did not know what was really going on, or they had an enormous capacity for self-deception, or they had decided that, "public-relationswise," it would be better to keep on saying that all the bombing carried out by the American Air Force was against strictly military targets.

In 1944 the new German weapons of air warfare appeared; these were the V 1 flying bomb, and the V 2 rocket. They were the forerunners of the family of rockets of all sizes and ranges which had its most spectacular flowering in the Sputnik in October 1957, and which has since multiplied and proliferated into great numbers of ICBM's, both in United States and Soviet Union arsenals. They were primarily the German answer to the bombing war against their homeland, and were intended not only to devastate British cities, as those of Germany were being devastated, but also to hamper and delay, if not prevent, the invasion of the Continent.

When put into action, these weapons were neither very accurate, nor dependable. But they would probably show about as good a pattern of placement of their explosive charges relative to the target as would the bombing of targets in Germany, for which they were retaliation. One can regard this development as stemming from Big Bertha, the German long-range super-gun of World War I which bombarded Paris. After all, bombardment is bombardment, whether the explosive charge is delivered by an air crew dropping it out of a bomber, by a pilotless ramjet-propelled aeroplane such as the V 1 or by a rocket. If the purpose is essentially to place a given quantity of incendiary material or high explosive within a given radius of the chosen target, the rocket would seem to be the most effective way of doing it, providing that the necessary range and accuracy can be built into the weapon. The Americans and Russians seem to have solved this problem, and incidentally, both started from the German experience, and with the aid of German technologists.

Fortunately for the Allies, and particularly for great Britain,

Dresden